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(54) Title: A COATING PROCESS AND RESULTANT PRODUCT

(57) Abstract: A process for coating fibre-cementitious boards, in order to glamorise a surface, involves the application of a ther-
mosetting adhesive transfer film to the surface of the board, which may have been primed, and rolling the transfer film under pressure
onto the board by means of a heated resiliently-surfaced roller.

A COATING PROCESS AND RESULTANT PRODUCT

TECHNICAL FIELD

- 5 This invention relates to an improved coating process which is particularly applicable to fibre-cementitious materials such as those sold, particularly in Australasia, under the trade mark Hardiflex, Hardiboard, Hardiplank and similar brands produced by others such as CSR Pty Ltd of Australia.

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BACKGROUND ART

- Such materials are difficult to coat because their porosity, and uniformity of structure varies. This creates difficulty when applying
- 15 paint coatings or when applying adhesives. The end result is poor bonding leading to an unacceptable product resulting in high reject rates.

- It was therefore an object of the present invention to provide a
- 20 coating system and resultant product which overcame the above mentioned difficulty or which would at least provide the public with a

useful choice.

DISCLOSURE OF THE INVENTION

5 The present invention consists in a coating system comprising the steps of imparting relative movement between a fibre cementitious board and a workstation; at the workstation progressively applying a thermosetting adhesive transfer film to the fibre cementitious board and rolling the transfer film under pressure onto the fibre cementitious
10 board by means of a heated resiliently-surfaced roller, thereby bonding or adhering the adhesive to the fibre cementitious board.

Preferably the transfer film may be stripped off the bonded surface by a winding process.

15

Preferably the stripped surface is subsequently coated with an ultra violet cured coating.

Preferably such coating is applied by spray, roller or curtain coating
20 methods.

Preferably such a film is clear.

Preferably the fibre cementitious board should be sealed with a suitable primer coating of acrylic or silicate compounds such as Bostik
5 (trademark) L3 Primer. A better product for that purpose is Mirotone (trademark) Mirocure UV7750 which is an acrylic coating.

The invention also includes the resultant product of the process.

10 MODES FOR CARRYING OUT THE INVENTION

In order to coat fibre-cementitious material such as Hardiboard, Hardiplank, CSR cent fibre sheeting etc, usefully done to glamorise the surface of a rather spartan product, a Kurz (trademark) foil
15 transfer machine or similar is utilised along with transfer foils such as Kurz transfer foil "SR superior" or similar. A good foil to use is their BASR super scratch resistant foil.

The machine basically consists of a bed of rollers adapted to progress
20 a board through the workstation. There is also an overhead roller which mounts the coil or roll of transfer foil, or stamping foil as it is

optionally called, and there is a large silicone, resiliently-surfaced roller which is heated and which is adjustable to allow variation of the downward pressure it imparts on the board travelling through the machine. The adhesive on the transfer foil is melted by the silicone
5 roller and it has been found unexpectedly that the porosity variations in the fibre-cement board and the surface variations of the board do not prevent effective bonding.

The transfer foil may have any suitable pattern applied in the usual
10 way to the usually clear plastic film which contacts the heated roller and which is subsequently stripped from the board once the bonding process has taken place. The pattern or colour applied to the transfer film transfers over to the adhesive.

15 Of course it would be possible to use the transfer foil without any printed pattern and merely as a means of coating the board surface with adhesive to provide a suitable substrate for subsequent coatings.

On the other hand where a pattern has been applied to the transfer
20 foil the finished product can be in simple plain colours such as cream, white, black, red etc or finished with wood grain or stone or granite

etc patterns for example. This effects a major transformation of the underlying fibre cementitious board adding considerably to its value and to its end uses. The transfer film may be progressively wound off the bonded surface onto a roller on the machine or, alternatively, 5 can be left in place if no other surface treatment is required, to protect the surface until the board is installed.

For some applications it may be desirable to remove the film immediately after bonding has occurred and to apply an ultra violet 10 cured coating by means of spray, roller or curtain coating techniques. Suitable coatings are supplied by Whitehall Technical Services Ltd and they may incorporate ceramic beads or aluminium silicates for instance to give scratch resistance. Such coatings may be clear, they may be coloured, be satin or high gloss, or they may impart a 15 textured surface to the board. Other coatings than ultra violet cured might also be suitable.

One particular application of the coating technique is to provide a bonding surface which effectively isolates the variable porosity and 20 irregularities of the fibre cementitious board from a subsequent coating. For example that subsequent coating may be an adhesive to

secure laminates in sheet or continuous coil form, such as FORMICA (registered trade mark), to the surface of the board.

Because of the resilience of the silicone roller it is possible to use the
5 method to apply a coating even to a patterned fibre cementitious surface such as one resembling wood grain, which is widely used as a weatherboard; or a tile, which is widely used as a wall lining in showers or kitchens or bathrooms.

10 It is also possible to have suitable foil transfers with signage on them so that when applied the fibre-cementitious board is immediately converted to a sign e.g. a road sign.

It is advantageous to precoat the board before applying the transfer
15 film to secure superior adhesion which might be required in some applications. This is done using a ultra violet cured film of acrylic. a suitable product is Mirotone, Mirocure UV7750. That product can be formulated with talc, enabling ready sanding after coating, or with pigments. The board does not cup when coated and curing is
20 complete within seconds so following steps in the desired process are not delayed.

CLAIMS

1. A coating system comprising the steps of imparting relative
movement between a fibre-cementitious board and a workstation; at
5 the workstation progressively applying a thermosetting adhesive
transfer film to the fibre-cementitious board and rolling the transfer
film under pressure onto the fibre-cementitious board by means of a
heated resiliently-surfaced roller, thereby bonding or adhering the
adhesive to the fibre-cementitious board.
10
2. The process of claim 1 wherein the transfer film is stripped off
the bonded surface by a winding process.
3. The process of claim 2 wherein the stripped surface is
15 subsequently coated with an ultra-violet cured coating.
4. The process of claim 3 wherein such a coating is clear.
5. The process of claim 1 wherein the fibre-cementitious board is
20 sealed with a suitable ultra-violet cured primer coating of acrylic prior
to applying the thermosetting adhesive transfer film.

6. The resultant product of the process claimed in any one of claims 1 to 5.

5 7. The product of the process both substantially as herein described.